

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT “L” ACCOMPANYING RCE

APPLICANTS: Tsuyonobu Hatazawa et al. ATTY DOCKET NO: 09792909-4673
SERIAL NO.: 09/718,767 GROUP ART UNIT: 1746
DATE FILED: November 22, 2000 EXAMINER: J. Crepeau
INVENTION: “NONAQUEOUS ELECTROLYTE BATTERY”

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S I R:

This Amendment “L” accompanies an RCE and is filed in response to the final Office Action of April 19, 2006. Please reconsider the application in view of the amendment and remarks presented below.

IN THE CLAIMS

1. (previously presented) A nonaqueous electrolyte battery comprising:

a battery element contained in an outer covering member composed of a laminated film and sealed therein by heat seal, the battery element having a positive electrode and a negative electrode each having a gel electrolyte at a portion thereof, the portions of the positive and negative electrodes being laminated to each other and pressed and wound such that the battery element is a winding type gel electrolyte battery element, the battery element having a first end at which first wound edges are located and a second end, which is opposite the first end, at which second wound edges are located, the gel electrolyte comprising a plasticizer containing a lithium salt and a matrix high polymer in an amount of 2 wt% to 30 wt%, the matrix high polymer comprising a fluorine based high polymer selected from the group of polyvinylidene fluoride and vinylidene fluoride-hexafluoropropylene copolymer;

a gas absorbable material and resin material interposed between an outermost layer of said outer covering member and said battery element, the gas absorbable material being one of molecular sieve and silica gel, a content of the gas absorbable material being in a range of 0.1wt% to 95wt% on a basis of a weight of the resin material, the gas absorbable material and the resin material having a thickness in a range of 1 μm to 500 μm ;

a first gas absorbable member positioned at the first end of the battery element adjacent the first wound edges of the battery element; and

a second gas absorbable member positioned at the second end of the battery element adjacent the second wound edges of the battery element;

said laminated film having a first outer covering member and a second outer covering member, the first outer covering member and the second outer covering member being a single common piece of material;

said first outer covering member having a preformed recess accommodating the battery element;

said second outer covering member extending from one side of the first outer covering member and folded onto the first outer covering member covering the battery element and the preformed recess.

2. (canceled).

3. (canceled).

4. (previously presented) A nonaqueous electrolyte battery according to claim 1, wherein said gas absorbable material is carbon molecular sieve.

5. (previously presented) A nonaqueous electrolyte battery according to claim 1, wherein said gas absorbable material is mixed with a resin material and the mixture is molded to form said first and second gas absorbable members, and said first and second gas absorbable members are inserted between the outermost layer of said outer covering member and at least one or more planes of said battery element.

6. (original) A nonaqueous electrolyte battery according to claim 1, wherein said gas absorbable material is contained in said laminated film.

7. (canceled).

8. (previously presented) A nonaqueous electrolyte battery according to claim 1, wherein the negative electrode of said battery element contains a material in or from which lithium is allowed to be doped or undoped.

9. (original) A nonaqueous electrolyte battery according to claim 8, wherein said material in or from which lithium is allowed to be doped or undoped is a carbon material.

10. (previously presented) A nonaqueous electrolyte battery according to claim 1, wherein the positive electrode of said battery element contains a composite oxide of lithium and a transition metal.

11. (original) A nonaqueous electrolyte battery according to claim 1, wherein said battery is a secondary battery.

REMARKS

Claims 1 and 4-11 are pending in the application. In the final Office Action of April 19, 2006, the Examiner made the following disposition:

- A.) Objected to claim 7.
- B.) Rejected claims 1 and 5-11 under 35 U.S.C. §103(a) as being unpatentable over *Chaloner-Gill* in view of *Bullock et al.* and further in view of *Gozdz et al.*
- C.) Rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Chaloner-Gill* in view of *Bullock et al.* in view of *Gozdz et al.* and further in view of *Wedlake*.

Applicants respectfully traverse the rejections and address the Examiner's disposition below.

A.) Objection to claim 7:

Claim 7 has been canceled.

B.) Rejection of claims 1 and 5-11 under 35 U.S.C. §103(a) as being unpatentable over *Chaloner-Gill* in view of *Bullock et al.* and further in view of *Gozdz et al.*:

Applicants respectfully disagree with the rejection.

Referring to Applicants' Figure 1 as an illustrative example, claim 1, as amended, claims a battery element 1 that has a first end at which first wound edges are located and a second end, which is opposite the first end, at which second wound edges are located. A first gas absorbable member 5 is positioned at the first end of the battery element adjacent the first wound edges of the battery element. A second gas absorbable 6 member is positioned at the second end of the battery element adjacent the second wound edges of the battery element.

The battery element is contained in an outer covering member composed of a laminated film and sealed therein by heat seal. The battery element has a positive electrode and a negative electrode each having a gel electrolyte at a portion thereof. The portions of the positive and negative electrodes are laminated to each other and pressed and wound such that the battery element is a winding type gel electrolyte battery element. The gel electrolyte comprises a plasticizer containing a lithium salt and a matrix high polymer in an amount of 2 wt% to 30 wt%. The matrix high polymer comprises a fluorine based high polymer selected from the group of polyvinylidene fluoride and vinylidene fluoride-hexafluoropropylene copolymer.

This is clearly unlike *Chaloner-Gill* in view of *Bullock* and further in view of *Gozdz*, which fails to disclose or suggest Applicants' claimed gel electrolyte. *Chaloner-Gill* fails to disclose or suggest a gel electrolyte that comprises a plasticizer containing a lithium salt or a

matrix high polymer, let alone in an amount of 2 wt% to 30 wt%. In fact, *Chaloner-Gill* fails to describe lithium salts or matrix high polymers.

Bullock also fails to disclose or suggest a gel electrolyte that comprises a plasticizer containing a lithium salt or a matrix high polymer, let alone in an amount of 2 wt% to 30 wt%. *Bullock* also fails to describe lithium salts or matrix high polymers.

Gozdz also fails to disclose or suggest Applicants' claimed gel electrolyte. *Gozdz* teaches a method of forming a battery that includes a polymeric electrolytic cell separator membrane. The cell separator membrane can include Vdf:HFP. *Gozdz* Example 8. However, unlike Applicants' claimed invention, *Gozdz* fails to disclose or suggest a gel electrolyte containing a matrix high polymer that may comprise Vdf:HFP. *Gozdz*'s cell separator membrane is not a gel electrolyte and does not comprise a gel electrolyte. Nowhere does *Gozdz* teach a gel electrolyte containing a matrix high polymer that may comprise Vdf:HFP.

Therefore, *Chaloner-Gill* in view of *Bullock* and further in view of *Kamauchi* still fails to disclose or suggest claim 1.

Claims 5, 6, and 8-11 depend directly or indirectly from claim 1 and are therefore allowable for at least the same reasons that claim 1 is allowable.

Claim 7 has been canceled.

Applicants respectfully submit the rejection has been overcome and request that it be withdrawn.

C.) Rejection of claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Chaloner-Gill* in view of *Bullock et al.* in view of *Gozdz et al.* and further in view of *Wedlake*:

Applicants respectfully disagree with the rejection.

Applicants' independent claim 1 is allowable over *Chaloner-Gill* in view of *Bullock et al.* and further in view of *Gozdz* as discussed above. *Wedlake* still fails to disclose or suggest Applicants' claimed gel electrolyte. Therefore, *Chaloner-Gill* in view of *Bullock et al.* and *Kamauchi* and further in view of *Wedlake* still fails to disclose or suggest claim 1.

Claim 4 depends directly or indirectly from claim 1 and is therefore allowable for at least the same reasons that claim 1 is allowable.

Applicants respectfully submit the rejection has been overcome and request that it be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that claims 1, 4-6, and 8-11 are patentable. It is therefore submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,

/Christopher P. Rauch/ (Reg. No. 45,034)

Christopher P. Rauch
SONNENSCHNEIDER, NATH & ROSENTHAL LLP
P.O. Box #061080
Wacker Drive Station - Sears Tower
Chicago, IL 60606-1080
Telephone 312/876-2606
Customer #26263
Attorneys for Applicant(s)